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DISTRIBUTION OF FREIGHT FLOW AMONG VARIOUS TYPES OF TRANSPORT IN THE USSR

Freight turnover and the average length of haul of freight for the different types of transportation in the USSR in 1940, 1946, and in the final year of the current Five-Year Plan are shown in the following table

	Year	Railroad	River	Maritime	Motor Vehicle	Aviation	Pipeline
Freight turnover in ton-kilometers (%)	1940	85.2	7.4	4.7	1.7	--	0.9
	1946	84.9	5.1	7.2	1.9	--	0.9
	1950	80.0	7.4	7.5	3.7	0.1	1.3
Average length of haul of freight (km)	1940	700	488	746	10	--	--
	1946	740	512	1,428	12	--	--
	1950	690	542	1,340	13	--	--

The distribution of freight flow among the different types of transportation in the USSR is carried out on the basis of the following factors:

1. The relative location of the producing areas and the consuming areas with regard to the routes of the different types of transport.

2. Loaded carrying capacity and routes of empty runs on the different types of transport.

3. Rate of delivery by the different types of transport.

4. Freight rates and the cost of hauling freight by the different types of transport.

5. Productivity of different types of transport in transporting freight.

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Influence of the Speed of Delivery on the Distribution of Freight Flow Among Different Types of Transport

At the present state of the economic development of the USSR, when all material resources are being mobilized for the rapid postwar restoration and development of the national economy, the speed factor of hauling exerts a decisive influence on the distribution of freight flow, particularly between railroad and river transport.

When there are insufficient operational reserves of a number of material resources in the consumption areas, the difference in the times of delivery of freight by railroad and river transport determines whether or not freight is to be diverted from river to railroad transport. This applies particularly to goods carried over long distances, where delivery by river transport causes a slighter diversion of material resources from the sphere of production than when railroad transport is used.

The difference in times of delivery of slow freight by railroad and water transport, set up by somewhat antiquated regulations still in force, is shown in the following table.

Freight Delivery Schedules (in 24-hour periods)

Route	By Railroad	By River	
		Downstream	Upstream
Yaroslavl - Astrakhan	13.0	15.0	30.0
Yaroslavl - Stalingrad	10.0	13.0	24.0
Yaroslavl - Saratov	9.5	11.0	20.0
Yaroslavl - Kuybyshev	8.5	8.0	15.0
Yaroslavl - Gor'kiy	3.5	4.0	5.0
Gor'kiy - Astrakhan	12.0	14.0	27.0
Gor'kiy - Stalingrad	11.0	11.0	22.0
Gor'kiy - Saratov	9.0	9.0	17.0
Gor'kiy - Kuybyshev	7.5	7.0	12.0
Kuybyshev - Astrakhan	7.0	9.0	17.0
Kuybyshev - Stalingrad	6.5	7.0	12.0
Kuybyshev - Saratov	3.5	5.0	7.0
Saratov - Astrakhan	4.5	7.0	12.0
Saratov - Stalingrad	3.5	4.0	7.0

Because freight delivery by river transport is slow, long hauling of bulk freight by water transport has been diverted by the railroad to the extent shown in the following table.

Average Length of Haul (km)

	Wood		Petroleum		All Freight	
	River Transport	Railroad Transport	River Transport	Railroad Transport	River Transport	Railroad Transport
1928	554	500	1,645	728	870	498
1940	360	1,019	1,259	1,234	488	700
1945	314	780	1,163	1,115	507	794
1946	368	830	996	1,117	510	745
1947	384	860	1,000	1,074	530	709

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As shown in the above table, the relationship between the length of haul of freight by railroad and river transport up to 1945 was generally unfavorable, and only in 1946 was this situation improved. When the average length of haul by the railroads increased, there was a decrease in the average length of haul by river transport.

In the last few years it was planned to increase the length of haul of freight by river transport, but this increase cannot be called adequate. In 1950, the average length of haul of petroleum and petroleum products on the railroads exceeded the average length of haul on river transport by an average of 700 kilometers, whereas in 1940, the average length of haul of petroleum and petroleum products by river transport had been greater than on railroad transport.

Influence of Rates and Cost of Hauling on the Distribution of Freight Flow Among Different Types of Transport

The cost of hauling and freight rates have almost as great an influence on the distribution of freight flow among the different types of transport as does the speed of hauling. The freight rate policy in the USSR provides a real stimulus for proper utilization of the different types of transport and for a universal development of freight hauling both by water transport and by combined railroad and water transport.

Revenue freight rates, introduced 1 January 1949, must correspond to the planned cost of hauling calculated for 1950. For each ton-kilometer, they amounted to: 5.395 kopecks (5.75 including extra charges) by railroad transport, 4.0 kopecks by river transport, and 3.5 kopecks by maritime transport.

To stimulate hauling, particularly of wood and petroleum, by river transport, lower freight rates are established for river transport than for railroad transport, as is shown in the following table:

Freight	Freight Rate per Ton-Km (kopecks)	
	By Railroad Transport	By River Transport
Average rates for all freight	5.395	4.0
Forest products	4.63	2.22 (when hauling wood in rafts)
Petroleum and petroleum products	--	4.17
Including:		
Gasoline and lubricating oil	6.08	--
Kerosene and ligroin	5.57	--
Dark petroleum	5.52	--
Dry freight	--	5.86
Coal and coke	3.72	--
Fuel wood	6.71	--
All ores	3.78	--
Cotton	5.95	--
Paper	6.22	--
Cement	5.05	--
Local construction materials	6.03	--

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The average freight rate is 2.5 times lower by maritime transport than by railroad transport. Rates established for hauling one ton of basic types of freight equal distances by railroad and maritime transport are shown in the following table (in rubles and kopecks):

Types of Freight and Transport	Distance of Hauling: By Railroad 185 Km, by Sea 100 Miles	By Railroad 1,482 Km, by Sea 800 Miles
Coal		
By railroad	10-34	53-10
By sea	6-58	20-02
Ore		
By railroad	9-08	51-30
By sea	6-58	20-02
Wood		
By railroad	14-51	58-20
By sea	9-52	26-98
Cement		
By railroad	15-88	71-25
By sea	7-98	24-08
Grain		
By railroad	14-48	64-90
By sea	13-72	41-58
Cotton		
By railroad	19-86	85-18
By sea	19-88	59-92

The lower rates are established for river and maritime transport to encourage freight hauling by water transport. Also, the rates for maritime transport stimulate maritime hauling in directions not only parallel to the railroads, but also in the empty directions of the railroads.

For river transport the freight rates are set up in such a way that the total freight charges for hauling freight in directions parallel to the railroads and in combined railroad and water transport are 20-30 percent lower than by railroad.

The Council of Ministers USSR in a decree of 8 November 1948, "Concerning Rates for Hauling Freight by Railroad Transport," maintained the previously used 30 percent reduced rate for hauling freight by combined railroad and water transport and established exceptionally high rates for hauling freight by railroad in directions parallel to water transport during the navigation period.

While the rates, from the viewpoint of organizations based on cost accounting which use the transport services, are a suitable criterion of the economic utilization of a certain type of transport for hauling freight, they cannot serve as the single criterion of the economically practical distribution of freight flow among the various types of transport from the national economy viewpoint, because they do not reflect the actual material and labor expenditures for hauling freight by specific routes.

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This is explained in a number of ways. First, the rates for railroad, river, and maritime transport are set up on the basis of mean revenue freight rates which correspond to the average planned costs of hauling freight on the respective types of transport. Meanwhile, the cost of hauling, which reflects the actual material and labor expended in the moving of freight, depends on a large number of factors: track profile, types of locomotives and cars, load capacity of barges, depths of the rivers, etc. In spite of the fact that the revenue freight rates on all railroad lines remain, as a rule, constant, the cost of hauling freight varies considerably in the different railroad systems and lines. For example, in 1948 the planned cost, for one ton-kilometer in through traffic was 1.78 kopecks for the Omsk Railroad System and 12.791 kopecks for the Ukov Railroad System. Thus, the freight rates imposed in hauling freight do not reflect the actual expenditure of labor and materials in moving freight and thus cannot serve as a single criterion for appraising the efficiency of the distribution of the freight flow among the various types of transport from a national economy standpoint.

Also, while there is a conformance of the mean revenue freight rates to the average planned costs of hauling freight as a whole on the various types of transport, this conformance does not remain constant for various types of freight. Thus, freight revenue received for hauling coal and other freight of one group by railroad transport is less than the cost of hauling this freight. This deficit is made up by increasing the revenue from freight above the cost of hauling certain freight in another group. In river transport the revenue freight rates in effect at present and the planned cost of hauling computed for 1950 are shown in the following table:

	Revenue Freight Rates per Ton-Km (kopecks)	Planned Cost of Hauling per Ton-Km (kopecks)
All freight	4.0	4.0
Including:		
Wood in rafts	2.22	1.4
Petroleum	1.17	2.4
Dry freight	5.86	7.24

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